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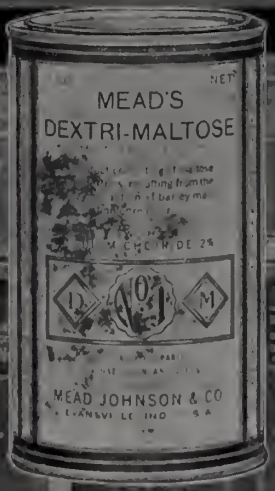
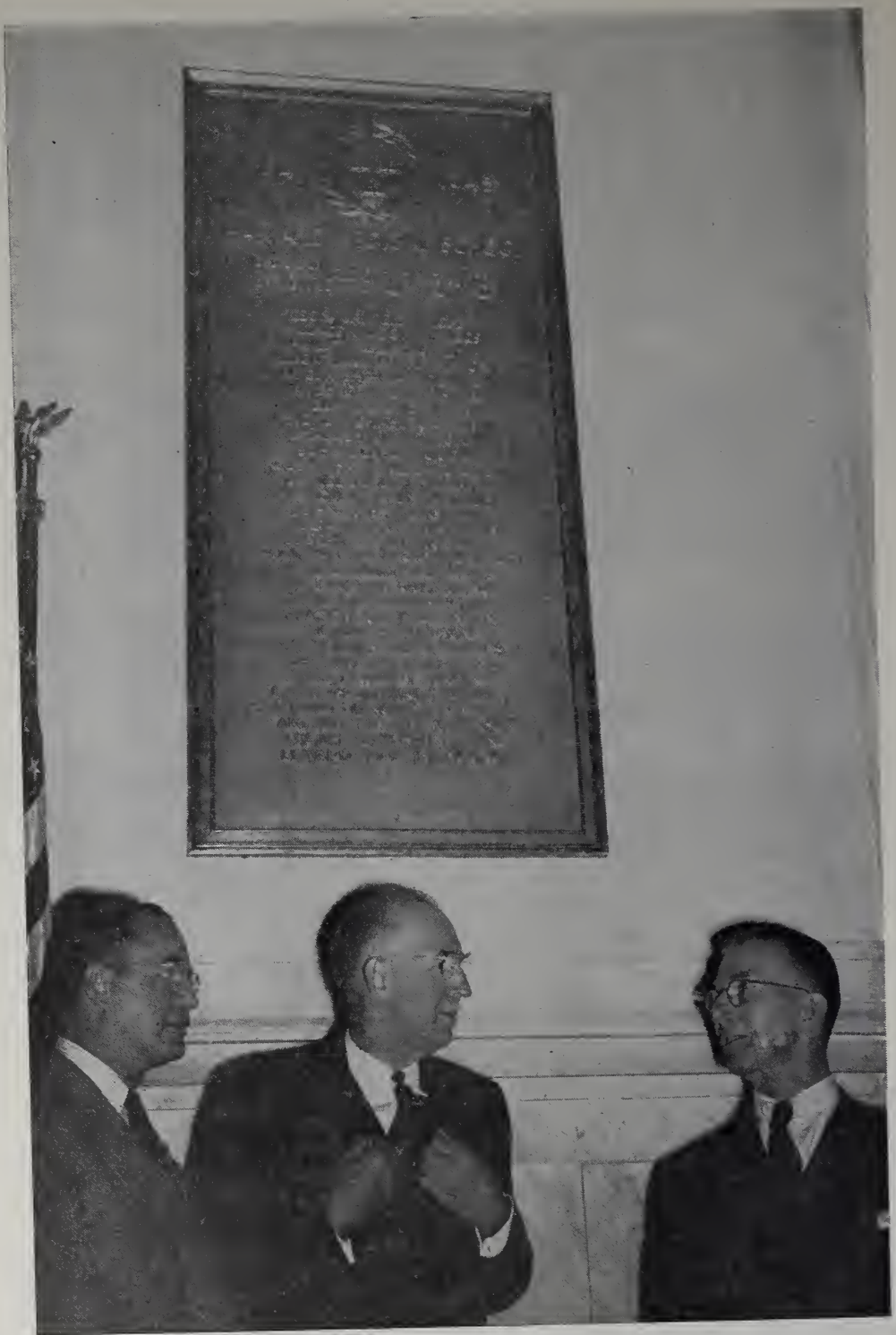
BACKGROUND

The use of cow's milk, water and carbohydrate mixtures represents the one system of

infant feeding that consistently, for over three decades, has received universal pediatric



recognition. No carbohydrate employed in this system of infant feeding enjoys so rich and enduring a background of authoritative clinical experience as Dextri-Maltose.



Kenneth E. Appel, President, Alumni Association, Dean C. Sidney Burwell, and J. Dellinger Barney, Vice-President.

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Medical School Notes

WAR MEMORIAL

On the stairway of Building A on October 27, 1948, the Officers and Council of the Harvard Medical Alumni Association met with the Dean to offer to the School the memorial plaque which had been placed on the wall of the first landing. Present were also representatives of several families of those whose names were there inscribed.

J. Dellinger Barney as Vice-president spoke first. "Dr. Burwell, members of the Council of the Harvard Medical Alumni Association, relatives, and friends. We are gathered here today to present to the Medical School this tablet, given by the Alumni, in memory of and to honor those men of the School who gave their lives in the service of their country in the last World War. The names of these men will ever be honored by posterity. Each was 'in the very May morn of his youth, ripe for exploits and mighty enterprises'. We do not know why these young men were not spared to carry upward and onward the torch of the art of healing, for 'now', in the words of the Apostle Paul, 'we see through a glass, darkly'. Perhaps it is better that they should carry the torch of courage and self sacrifice. Dr. Burwell, we hope that in your capacity as Dean, you will accept this tablet for the Harvard Medical School."

Dean Burwell then replied. "As Dean of the Faculty of Medicine, I have the honor to accept this gracious gift of the Alumni Association set up as a memorial to those members of the Harvard Medical School who gave their lives during the war. As we stand here and read the names on this tablet, we think with pride and sadness of the individuals whose names are found here. We think of them not alone for their own great sacrifice, but as representatives of that far larger group of members of the Harvard Medical School who served their country's cause during the Second World War. It is a cause for pride that out of approximately 5,600 alumni of the Harvard Medical School not less than 1,848 were on active duty in the armed services of the allied countries during the war. I wish to put particular emphasis on the gratitude of the Faculty to the Alumni Association for this gift. It seems to me a highly suitable thing for the Alumni Association to do for the Harvard Medical School and for the whole body of the alumni. This tablet is a record of appropriate dignity of something of which we are all very proud. I thank you very much."

Following this the entire company adjourned to the Faculty Room where tea was served.

APPOINTMENTS AND TITLES

The School has very recently formulated and published a system of Appointments and Titles which should aid greatly in the understanding of what has been a most esoteric matter.

The Staff has been separated into three groups: University Full-Time, Hospital Full-Time and Part-Time.

From now on appointments to the University Full-Time staff below the ranks of Professor and Associate Professor are limited in tenure. A definite rate of promotion must also be attained. Eleven years has been set as the maximum period for such staff positions. By the end of this period one of the following decisions must be made:

1. Appointment as Professor or Associate Professor
2. Transfer to hospital full-time
3. Transfer to part-time status
4. Go elsewhere

It is also planned that the permanent staff positions will be defined in number. Thus it will become clear to the young

academician what his chances for the future may be at Harvard. He will know, at least numerically, the permanent positions which will become open during the eleven years he will be permitted on the Staff, and will be better able to plan his future.

The Hospital Full-Time Group have the same titles and terms of appointment as do the University Full-Time Group. It is the responsibility of the hospital, however, and not the University to determine their tenure and duties. Not less than 80% of their salary must be paid by hospital money.

The Part-Time Group bear titles to which the word "Clinical" is added. They are thus Clinical Professor or Assistant Clinical Professor or Clinical Associate. The salary, if any, will be no more than 25% of the scale for the academic grade and it may be paid by the University, the hospital or jointly. There is no limit to the number of reappointments.

A NATIONAL INSTITUTION

In the Dean's Report for the academic year 1947-1948, the point is made that Harvard as a medical school has reached national significance. No longer should it be considered a regional institution.

To emphasize its national character, the Dean's Report contains tables that demonstrate that students from 46 states are in attendance at the School. And further that except for Massachusetts and New Hampshire, the states are represented by numbers of students roughly proportional to their respective population.

If one examines the numbers of students as originating from a region or group of states the result is as follows:

New England States	120
Middle Atlantic States	108
Middle Western States	103
Far Western States	53
Southern States	98

This wide and even geographical representation exists in a school whose Admission Committee does *not* weigh geographical origin in the selection of students. One must assume that the School has applicants of recognizable superiority from every section of the country.

Another aspect of the national significance of the School is the constant flow of teachers trained at Harvard to all parts of the country. Thus in the last two or three years at least 20 members of the Faculty have accepted positions of professorial rank at other institutions scattered from Washington to Maryland.

Thus it is apparent that the School receives students from and sends back teachers to the entire country.

DUNHAM LECTURES

It seems probable that there are many Alumni who have heard of the Edward K. Dunham Lectures, but who are unaware of the background of this important lectureship.

Edward K. Dunham was a graduate of the School in the Class of 1886 and was trained in pathology at Koch's laboratory in Berlin. He started practice in New York City and in 1899 became Professor of Pathology at the New York University and Bellevue Medical College.

Perhaps his major contributions came as a result of his appointment as Chairman of the Empyema Commission of the U. S. Army during World War I, where he collaborated with Dakin in the study of chlorine antiseptics in wound disinfection. He previously had discovered the "cholera red" reaction and the spore of the Welch bacillus.

He died in 1922 and in 1923 the Lectureship was founded. Among the useful purposes for which the Foundation was established was that of binding closer "the bonds of fellowship and understanding between students and investigators in this and foreign countries." The lecturers are chosen from "eminent investigators and teachers in one of the branches of the Medical Sciences or of the basic Sciences which contribute towards the advance of Medical Sciences in the broadest sense."

The following is a list of the previous lectures:

Willem Einthoven, M.D., Ph.D., LL.D., Nobel Laureate, Professor of Physiology, University of Leyden. 1924-25.

Ross Granville Harrison, Ph.D., M.D., Professor of Comparative Anatomy, Yale University. 1925-26.

Richard Willstätter, Ph.D., M.D. (hon.), Nobel Laureate, Privy Councillor, and Professor in The University of Munich. 1926-27.

Sir Charles Scott Sherrington, O.M., M.D., LL.D., Nobel Laureate, Professor of Physiology, Oxford University, 1927-28.

Louis Lapicque, M.D., D.Sc., LL.D., Professor of General Physiology at the Sorbonne. 1928-29.

Sir Joseph Barcroft, C.B.E., M.A., M.D. (hon.), Professor of Physiology, Cambridge University. 1929-30.

Franz Knoop, M.D., Professor of Physiological Chemistry, University of Tübingen, 1930-31.

Ludwig Pick, M.D., Professor of Pathology, University of Berlin. 1931-32.

Otto Loewi, M.D., Professor of Pharmacology, University of Graz. 1932-33.

Otto Lous Mohr, M.D., Professor of Medicine, The Royal Frederiks University, Oslo. 1933-34.

Ulrich Friedemann, M.D., Formerly Professor of Hygiene, University of Berlin. 1934-35.

Bernardo Alberto Houssay, M.D., Professor of Physiology, University of Buenos Aires. 1935-36.

Sir Frederick Gowland Hopkins, O.M., M.D., D.Sc., LL.D., Nobel Laureate, Professor of Biochemistry, Cambridge University. 1936-37.

Corneille Heymans, M.D., Nobel Laureate, Professor of Pharmacology, University of Ghent. 1937-38.

K. Linderstrom-Lang, Director of the Chemical Department, Calsberg Laboratory, Copenhagen. 1938-39.

S. Walter Ranson, M.D., Ph.D., Professor of Neurology and Director of the Institute of Neurology, Northwestern University. 1939-40.

Rudolf Schoenheimer, M.D., Formerly Associate Professor of Biological Chemistry, Columbia University. 1941.

Charles Putnam Symonds, M.D., Air Commodore in the Royal Air Force—Consultant in Neurology. 1942-43.

Frank Macfarlane Burnet, M.D., Ph.D., Assistant Director and Head of Virus Department, Walter and Eliza Hall Institute of Research in Pathology and Medicine, Melbourne. 1943-44.

Vincent B. Wigglesworth, M.D., F.R.S., F.R.E.S., Director, Agricultural Research Council Unit of Insect Physiology, London School of Hygiene and Tropical Medicine, London. 1944-45.

Torbjörn Oskar Caspersson, M.D., Director, Department for Cell Research, Medical Nobel Institute, Stockholm. 1945-46.

Rudolph Albert Peters, M.D., M.C., F.R.S., Whitley Professor of Biochemistry, Oxford University. 1946-47.

André Lwoff, M.D., D.Sc., Head of the Department of Microbial Physiology, Institut Pasteur, Paris 1948.

This year the lecture will be given on March 28, 30, and April 1 by Dr. Wilder Penfield, Professor of Neurology and Neurosurgery, McGill University, Montreal.

The National Blood Program Of the American Red Cross

Louis K. Diamond, '27, Medical Director, National Blood Program

THE interest of the American Red Cross in blood programs began with the systematic enrolling of volunteer blood donors in Augusta, Georgia, in 1936. This interest was maintained through volunteer activities up to World War II. When the demand by the armed services for plasma in 1941 became so great as to require the initiation and maintenance of a large organization, it was logical to turn to the American Red Cross for assistance.

A volunteer blood donor program was successfully set up to supply sufficient plasma at the battlefront, as well as in the military hospitals at home. In four years 13 million pints of blood were collected and more than nine million pints of plasma were prepared for military use. In the last year of the war alone, some five million donors gave blood through their Red Cross blood bank; the rate of donation went as high as 123,000 pints of blood in a single week.

In the meantime, it was realized by the physicians in the armed forces and by their supporting civilian medical advisors that plasma alone did not always meet the needs of battle casualties, particularly where loss of blood produced serious shock remediable only by replacement with blood cells. In 1943 blood banks were organized in various overseas units of the armed forces in order to supply whole blood locally. By 1944 whole blood collected in preservative solutions in this country was shipped refrigerated to the battlefronts; 205,000 pints went to Europe and 181,000 to the Pacific. In the battle of Okinawa alone more than 40,000 pints were employed. The use of such large amounts of whole blood and plasma contributed greatly to the lowered hospital mortality rate in World War II which was approximately one half that of World War I. In spite of the higher wounded rate, this overall mortality was said to be only 3%.

Through the experience gained with thousands of battle casualties, physicians in the medical corps of the armed forces, in particular, recognized blood as an important measure of medical therapy, and blood derivatives as efficient and specific therapeutic aids.

The story of plasma fractionation unfolded early in the war, through the pioneer work of Dr. Edwin J. Cohn and his coworkers in our Department of Physical Chemistry. Unadulterated and concentrated fractions of plasma were prepared in pure form. These were tested clinically by Dr. Charles A. Janeway of the Department of Pediatrics, Dr. Franc D. Ingraham of the Department of Surgery, and a large staff of collaborators. As a result, certain very useful derivatives were made more generally available. These were: serum albumin for the treatment of shock; gamma globulin for the prevention and modification of measles, infectious hepatitis and mumps; fibrinogen and fibrin foam as hemostatic agents; fibrin film as a dural substitute in neurosurgery; and antihemophilic globulin to protect hemophilic patients from serious hemorrhage. In the middle of the war, human serum albumin became the principal shock-combatting agent used by the Navy because of its effectiveness, compactness, and immediate availability for battle casualties.

After the war, civilian medical practice saw a great increase in the demand for blood and blood derivatives, for these advances in effective and prompt treatment of members of the armed forces could be carried over directly to the better treatment of civilians suffering from injuries or disease.

How was this ever-increasing need for blood to be met in private practice? There were two principal ways. In the first place, a number of blood banks had been established in the larger hospitals and medical

centers, where seriously ill patients and important surgical procedures demanded blood and its component parts. Such blood banks necessitated investment by the hospital of an appreciable sum of money, often amounting to thousands of dollars. Some smaller hospitals and large but less well-endowed institutions started blood banks by procurement of funds from the federal government offered during the war through grants from the Office of Civilian Defense.

Once established, such hospital blood banks obtained their stock in trade, that is, whole blood, almost exclusively (90% or less), from the relatives and friends of the recipients of blood. A variable amount, 10% or more, had to be purchased from professional donors. Only rarely were such blood banks able to obtain large contributions of blood from civic-minded organizations in response to specific appeals or as a protection to one or more of their members in need of blood.

Next, there was the private blood bank, often started in a large community by a philanthropic citizen or by a group of civic-minded donors. The success of this activity was dependent upon replacement of blood used, generally on a two pints for one basis, by the hospital or physician demanding the blood. Where this replacement was not forthcoming, an average charge of $25 was made and such money used to purchase blood from professional donors at a fee which often permitted considerable profit in the transaction. Since during the war and shortly afterwards many patients had full pocketbooks, it was often easier to collect this penalty fee than to persuade relatives and friends of patients to come in to give blood for replacement. Such private blood banks, therefore, have generally flourished financially and, in fact, in some large cities have made impressive profits.

Many of the blood banks in hospitals and in communities where the banks were sponsored by local medical societies took advantage of the experiences of the Red Cross by requesting the aid of the local chapter. Thus arose what has been called the "permissive Red Cross blood program", meaning permission has been received from the national organization for a local Red Cross chapter to participate in an existing blood bank activity sponsored by medical societies, health departments, or hospital agencies. At present there are about 90 such permissive programs scattered over the country.

Despite these efforts toward the establishment of blood banks in the larger cities, it was generally recognized in 1947 that the needs of the country as a whole were not being met. Due to the large initial expense and the early heavy carrying charges, only 20% of the hospitals had blood banks.

Because of these difficulties and the great need to procure larger amounts of blood and blood fractions, the American Red Cross Advisory Board on Health Services inquired into the possibility of initiating a national blood program not only to take care of emergencies, but to serve the civilian population at all times. On the advice of this board of medical experts, with the approval in principle of the American Medical Association, the American Hospital Association, the Association of State and Territorial Health Officers, the United States Public Health Service, and other similar groups, and after consultation in regional meetings with representatives of a large cross-section of Red Cross chapters throughout the country, the governing body of the American National Red Cross in June 1947 authorized the National Blood Progam as a program activity of the organization. This program, under the immediate supervision of Dr. G. Foard McGinnes, Vice President for Health Services of the American Red Cross, was advised by a committee composed of ranking medical scientists and teachers in this country. The wartime Surgeon General of the Navy and White House physician, Dr. Ross T. McIntire, was chosen as Administrator of the National Blood Program. To assist in medical advice and particularly in evaluation of the use of blood and blood fractions, a subcommittee of some 28 mem-

bers, again outstanding authorities in medicine, surgery, and special branches, was chosen.

A survey was made of the large cities and communities in which blood banks were lacking, where a real need existed as judged by the considered opinions of the physicians in the area. Certain conditions were then made mandatory before the National Blood Program of the American Red Cross could consider establishment of a regional blood center. These conditions were: the approval of the members of the local or county medical society and the formation of a special committee from the medical society to supervise and assist in the activity of the regional blood center, the approval of the hospital council; and the approval of the public health organization. Finally, it is clearly necessary that the local Red Cross chapter or group of regional chapters in cooperation should bear the cost of procuring and maintaining suitable quarters and should organize the necessary number of volunteers to help in every phase of the activity. Only thereafter was a regional blood program to be organized. Under no circumstances was a program to be contemplated in any region in which there were already established blood banks meeting the needs of the community.

The first regional blood center was opened in Rochester, New York, where the community had already considered founding a blood bank and invited the Red Cross to cooperate. Although there had been five well established hospital blood banks in this city, the successful operation of the regional center under Red Cross auspices has resulted in an increased amount of blood, not only for the hospitals in the city of Rochester itself, but in some 20 neighboring communities. The hospitals in the city have given over the chore of procurement and bleeding of donors to the Red Cross regional center and have maintained their local blood supply and their blood bank activities as far as the recipient phase is concerned, in a satisfactory fashion ever since. From an initial level of ten thousand pints of blood per year, a rate of more than 20,000 per year has been reached in less than eight months.

The successful operation of these regional centers established under the National Blood Program of the American Red Cross is dependent upon the ability to take advantage of the two principal methods of donor procurement: (1) Through the cooperation of the doctors in charge of the patients and of the hospitals where the blood is used, relatives and friends of the recipients are urgently requested to send donors to the regional center in as large a number as possible so that blood may be available for others when it is called for. Like all philanthropy, therefore, the blood is given not merely as a replacement of a pint for a pint, or even two pints for one, but to the limit of the individual's or the family's ability to give, no matter how little may have been used or may be received in return. (2) Large industrial firms, benevolent societies, church, legion, and club organizations, and local communities can be canvassed actively by Red Cross volunteers and trained workers and urged to make donations in groups. More blood is likely to be available through this combination of efforts than either method of procurement could have produced alone. Further efficiency in donor enrollment has been possible by the use of mobile units which visit outlying communities, factories, and office buildings, each on a particular day, and obtain a maximum number of donors without too great interference with individual or company schedules. These two methods of donor procurement need not conflict with each other and make up the unique contribution which the National Blood Program of the American Red Cross can offer to a community.

An increased budget is contemplated for the National Blood Program for the next five years, starting with five million dollars for the fiscal year 1948-49, which may increase to ten million or more for the fiscal year 1952-53. Only a limited number of centers can be organized each year, even though the need is obvious and the demand continues to increase. Such centers

must be set up according to the conditions mentioned above with an eye to the greatest value on regional distribution so that the country as a whole is covered. For example, to insure the success of each center, by June 30, 1949, no more than 34 regional centers will be placed in operation.

The National Blood Program of the American Red Cross will cooperate with existing hospital and community blood banks, particularly in times of emergency, whether due to sudden personal needs by one or more patients, to local catastrophe, or to national disaster. By a system of cooperation such as this which is actually in operation in some large cities like Boston, the demands of the public, even if very great, will come nearer being met than through the slow and difficult growth of private organizations when and where they become financially possible.

In the first year of its operation, the National Blood Program has been well accepted and has received the support of outstanding specialists and general practitioners and the repeated endorsement in principle by the House of Delegates of the American Medical Association and by many state and local medical societies. However, there has been opposition from some physicians and a few laymen.

In large part, this has been the result of ignorance of the aims of the National Blood Program and the methods of its functioning. In this category there is chiefly the bugaboo of socialized medicine which so many physicians fear. When it is explained that the National Blood Program is essentially a community or regional program with direction and supervision as well as considerable control in the hands of the local physicians and medical societies, this opposition can be dispelled. In fact, no better guarantee against socialized medicine exists in this field than the cooperation of local physicians with the National Blood Program of the American Red Cross. Certainly the alternative necessary to meet promptly the demands of the civil and military agencies for more blood would be a federal program or at least a program sponsored by a federal agency such as the Public Health Service, the Federal Security Agency, or the Atomic Energy Commission. The success of the Red Cross in this field would remove the necessity for a federally sponsored National Blood Program.

A vociferous minority of critics has claimed that the American Red Cross is entering the practice of medicine by establishing regional blood centers. Certainly the buying and selling of blood can not be justifiably considered a part of the practice of medicine. An organization which builds up large profits from the sale of blood, most of which is given voluntarily, is open to serious criticism.

The use of "free blood" has also been deplored on the basis that people who can afford to pay will receive an expensive therapeutic agent without charge. Actually there is a well-established and universally accepted precedent for this. When various state health departments began distributing vaccines, antitoxins, etc. to doctors for prophylactic and therapeutic purposes, the same cry of "free medicine" was raised. However, as rapidly proved, the procurement of such biological products without charge has permitted the doctor to employ them freely wherever needed, and in fact has added to the doctor's income by permitting the patients to pay him for his services instead of having to purchase expensive therapeutic agents. Certainly the same will be true of blood and blood fractions. The ability of the physician to obtain these, without charge to the patient, will make the necessary use of them easier and obtain for the physician a fee commensurate with his services when formerly the price of the blood often prohibited this.

The physician is required to establish the need for blood, to insure the proper safeguards, and to administer the blood to the patient. Thus it is necessary to acquaint doctors with the indications as well as the possible harmful effects of blood and its derivatives. Since learning through personal experience is slow and may involve a patient's life, it is necessary that physi-

cians who are leaders in this field educate their associates in the proper use of these important therapeutic agents. All advertising and publicity matters must be screened through a committee of physicians so that misinformation regarding the National Blood Program is not disseminated.

There is also a great need to educate the public, as much to the use of blood as to the fact that blood must be obtained in adequate amounts in each community so as to protect its own members. In other words, each possible donor must be contacted and imbued with the desire to protect himself, his family and his fellow man. He must be inspired to give not for replacement but to the limit of his ability. The facts, first widely realized during the war, that donation of blood can be made by the average healthy adult with no harm to himself and that there is no substitute for blood are important concepts to impress upon the public.

Some of the established blood banks have feared that the entrance of the American Red Cross into their field of activity might disrupt the smooth operation of a local donor procurement program which is meeting the needs of a community. Such is not the case. The public becomes more accustomed to contributing blood. The Red Cross can assist greatly in the procurement of more donors and in the establishment of an efficient blood bank in any community where needed. It still is important that the hospitals retain full control over crossmatching, rechecking, and administering the blood to the recipient.

Finally, a source of opposition which is difficult to combat arises from the private blood banks of the so-called non-profit variety which have accumulated large financial reserves through buying blood. Some of these banks are under able and efficient administrators but these are not physicians. Every American Red Cross regional blood center is and always will be under the technical and medical direction of a qualified physician only, since much of the operation of a blood center is highly technical and intimately concerns the practice of medicine.

The Red Cross is the logical and ideal agency for management of a National Blood Program. During the war it demonstrated its ability to enroll millions of donors and to help with the procurement of blood. As a result, it has the experience in this field. In addition, it has large amounts of excess plasma which can now best be returned to the public in the form of fractions or derivatives of blood. In this category, albumin for treatment of shock, low blood proteins, and certain chronic circulatory, hepatic, and kidney diseases; gamma globulin chiefly for prevention and modification of measles after exposure, and fibrinogen in several useful forms have proved extremely valuable in the practice of medicine. In fact, during the past two years the American Red Cross distributed over one million units of gamma globulin and thousands of units of serum albumin. If these were purchased commercially, at the present scale of prices, they would represent expenditures of more than ten million dollars. As these products are exhausted, more must be obtained from plasma which can be collected in the established hospital and private blood banks as well as by the Red Cross regional centers and pooled for proper processing and fractionation into useful components.

Another important consideration is that much of the future research on the use of these fractions and others that have as yet not been studied is being carried on and will be carried on in hospitals and medical schools nationwide. The Red Cross does not actively sponsor such research with funds, but it can serve the important function of making fractions available for experimentation. As research by protein chemists continues, new fractions, in pure form, are being prepared and used in clinical trials. Important tools for medical investigation and for specific therapy are being so obtained. No single private blood bank nor group of them could gather sufficient plasma for large scale production of these important plasma derivatives. An

example of what can be done through the cooperation of many leading investigators is seen in the recent meeting at Harvard sponsored in part by the American Red Cross. Here more than one hundred scientists assembled to summarize the present knowledge of the component parts of blood and to consider methods of further investigation in the preservation and use of blood and blood derivatives. Their recommendations will serve as the basis for changes which will be put into operation as soon as possible by the National Blood Program.

The American Red Cross will train young physicians, nurses, and technicians in the management, in the practical procedures, and in the indications and contraindications for and the danger of blood transfusion. Hospitals cooperating with the Red Cross wherever regional centers are established may share on a part time basis the medical personnel of the blood center for teaching and training purposes.

Finally, through coordination of the various regional Red Cross blood centers and cooperation between these centers and hospitals and private blood banks, uniform methods of blood bank management, standard interchangeable equipment, and large reserves of needed materials will make the future supply of blood more prompt and more easily available.

All physicians who have given the possibility of atomic disaster any thought are anxious to do everything in their power to make blood available more readily in larger quantities than in the past for all patients who may need it. This singleness of purpose is behind the efforts of thousands of doctors all over the country. The only question is how this can best be rapidly accomplished. The Red Cross is the proper agency to assist in meeting the needs for blood and blood derivatives. By its efforts the Red Cross benefits all the people in this country, and the National Blood Program may prove to be one of the most beneficial activities of the American Red Cross in time of national emergency, for local disaster, and for everyday individual need.

Reid Hunt

1. *Short History of the Scientific Life of Reid Hunt.*

Reid Hunt was born on April 20, 1870, in Martinsville, Ohio, of Quaker parents. He graduated from Martinsville High School in 1886 and after a year each at Wilmington College and Ohio University went to Johns Hopkins University, where he obtained his A.B. in 1891. For three years prior to this he had been interested in physiology and became a student assistant under Newell Martin. Early in 1892 he went to Germany where he enrolled as a Medical Student at the University of Bonn. During this period he became interested in pharmacology inspired by the lectures of the head of the Department of Pharmacology, Professor C. Binz. He returned to Johns Hopkins at the end of the summer and took up graduate study in physiology. After three years of graduate work in physiology under N. Martin and W. H. Howell at Johns Hopkins, he took his Ph.D. in Physiology in 1896 and received an M.D. in the same year from the College of Physicians and Surgeons in Baltimore. From 1896 to 1898 he was Tutor in Physiology at the Columbia College of Physicians and Surgeons. In 1897 he spent a short time studying chemistry with J. Stieglitz in Chicago. In the summers of 1898 and 1899 he participated in expeditions to Egypt and the Sudan to study *Polypterus bichir,* a crossopterygian fish of the Nile and certain neighboring waters.

Reid Hunt definitely turned to pharmacology in 1898 when he joined J. J. Abel at Johns Hopkins Medical School. He was an Associate in Pharmacology from 1898 to 1901, and Associate Professor of Pharmacology from 1901 to 1904.

While officially connected with Johns Hopkins during the years 1902 and 1903 he spent much of his time in Germany working with Paul Ehrlich at the Speyer Haus in Frankfurt.

In 1904 the organization of a Division of Pharmacology of the Hygienic Laboratory of the U. S. Public Health and Marine Hospital Service was entrusted to him. He was the Chief of this Division from its inception until 1913 and after 1910 held the title of Professor of Pharmacology. In September 1913 he was called to Harvard Medical School as Professor of Pharmacology, and Head of the Department. He became Professor Emeritus when he retired from active service in 1936. Reid Hunt died on March 10, 1948.

2. *Reid Hunt as a Scientific Investigator.*

Reid Hunt brought to his future career a keen interest in general biology and systematically prepared himself for investigative work by intensive studies in physiology and medicine and by additional training in chemistry. Prior to being charged with an independent research position he had selected for his professional education the laboratories of several outstanding scientists and investigators in physiology, chemistry and pharmacology. Paul Ehrlich exerted the strongest and most decisive influence upon Reid Hunt. This can be seen not only from much of Hunt's scientific work but also from the lasting and warm personal relations between the two men.

The main scientific work of Reid Hunt which brought him national and international fame was in the fields of the physiology and pharmacology of the autonomic nervous system and of the thyroid gland.

(a) *Autonomic nervous system.* While under the influence of Howell, Hunt investigated the problem of the reflex blood pressure decrease and the relation of inhibitory to accelerator nerves of the heart. The most important result of these early studies was the formulation of "the law of the antagonism of the cardiac nerves: when the accelerators and vagi are stimulated simultaneously the effect upon heart rate is determined by the relative strength of the two stimulating currents, and for submaximal stimuli the result is approximately the arithmetical mean of the effect of stimulating the nerves separately".

His own work on the autonomic nervous system started with his observation in Abel's laboratory in 1900 of a blood pressure lowering action of suprarenal extracts freed from epinephrine. Hunt identified *choline* as one of the responsible substances. Further work revealed discrepancies between choline content and blood pressure decreasing action and suggested that there might be present, in the suprarenal gland, derivatives of choline more potent than choline itself. This led him to prepare and study pharmacologically the known choline-esters.

In 1906 a short notice by Hunt and Taveau appeared, describing new methods for detecting choline. One of these—a chemical method—consisted in making the benzoyl ester which forms an easily recognizable platinum chloride; the other—a biological method—consisted in acetylation of choline and using the blood pressure activity of the acetylcholine for determination. The extraordinary phenomenon that acetylation increased the pharmacological activity of choline on blood pressure "100,000 times" profoundly impressed Hunt. That he had made a discovery of greatest biological importance he could scarcely have realized at that time.

Systematically, he now prepared and studied the action of a large number of choline and related compounds, and in the course of five years accumulated a monumental body of facts upon which he developed a concept of the relation between chemical structure and pharmacological action of these substances. This enabled him to predict the properties of certain compounds—as to stability, intensity and duration of action—desirable for therapeutic use.

The general conclusions he drew from this work in 1911 sound strangely modern, when he discusses the carrier function of the choline group for the esters and ethers of choline. "The role of this group is probably to carry the compounds to definite cell structures—or, to use a comparison of Ehrlich's, to make them fit in a certain mosaic . . . The reasons for the efficiency of the group as a carrier and the low toxicity of its derivatives are perhaps to be found in the fact that choline is a constituent of probably all plant and animal cells; these have places into which the compounds can fit and the cells themselves containing such groups are not injured by them as they would be by new and unusual groups".

Ehrlich's concepts had entered the prepared mind of Hunt and he brought them to life in a new and independent manner that called forth the admiration of his teacher.

It seems strange today that the general phyiological implication of his discovery of the powerful effect of acetylcholine upon the circulation should not have been clearly and early recognized by Hunt. This has various reasons. Until Dale had shown the *vasodilator* action of acetylcholine, Hunt had assumed its action to be essentially a negative inotropic cardiac action.

He frankly admitted his error in the studies on vasodilator reactions, published in 1918, in which he confirmed Dale's observations. In two publications Hunt described a vasodilator mechanism widely distributed, at least in certain animals, and characterized by three outstanding features: (1) it responded with great energy to a limited group of compounds of the choline type; (2) its action was prevented by atropine; and (3) it was apparently not connected with any of the known vasodilator nerves. He also found that

the vasodilator action of acetylcholine was intensified by physostigmine.

On these studies and on a review of the literature, Hunt based a critical evaluation of the assumption that acetylcholine is the typical parasympathetic nerve stimulant. He considered the evidence inconclusive. His main argument was that it had not been possible to show that acetylcholine was involved in the action of the depressor and other nerves.

Hunt was too cautious to draw daring conclusions for which the evidence, to him, was insufficient. It took another five years before the experimental facts, which he required to accept the important physiological role of acetylcholine, were brought to light by the work of Otto Loewi.

Hunt's interest in this field never ceased and up to the last years of his active academic life he continued to make fundamental contributions to the pharmacology of the autonomic nervous system by the systematic study of the quaternary ammonium compounds and related substances of which the arsonium, stibonium, sulfonium and phosphonium compounds are of especial theoretical interest.

A number of the compounds prepared and studied by Hunt and his collaborators have become valuable remedies for reasons which he predicted when setting out to synthesize them.

The importance of Hunt's work on the pharmacology of the autonomic nervous system is very great. Its general biological implications have only been recognized since the role of acetycholine in the function of the nervous system began to emerge.

(b) *The Thyroid Gland.* While working with Ehrlich, Hunt studied the antagonistic action, in the mouse, of various groups of substances to the poisonous action of the nitriles, especially acetonitrile. He confirmed the fact that mice could be protected against otherwise lethal doses by treatment with sodium thiosulfate and found ethylalcohol and dextrose had a similar protective effect. On the hypothesis that an increase in basal metabolism should enhance the poisonous effect of acetonitrile by more rapid oxidation of the substance to hydrocyanic acid, he administered it to rats, guinea pigs, and mice, pretreated for several days with thyroid. In agreement with his assumption, the lethal dose for rats and guinea pigs decreased. However, mice became very resistant to acetonitrile so that a multiple of the lethal dose for a normal animal was tolerated by a hyperthyroid mouse.

This phenomenon in the mouse, which he reported in 1905, has beome widely known as the acetonitrile reaction of Hunt. For the next twenty years he employed this reaction as a tool to probe into various problems of thyroid physiology and pharmacology, and in a series of extensive and painstaking studies he brought to light important facts. For example: Iodine compounds exert an action upon the organism by influencing the function of the thyroid gland. Certain diets profoundly influence the incretory function of the thyroid. Thyroid gland preparations have a physiological activity parallel to their iodine content. It is possible, for therapeutic purposes, to standardize thyroid preparations satisfactorily by iodine determination and by establishing a required percentage iodine content.

Although the acetonitrile test, as we know now, has limitations and is no longer of practical use, it is to the great credit of Hunt that his perspicacity made him recognize its value as a pharmacological tool and that his careful use of the tool led him to observations and conclusions which have since been confirmed by other methods.

(c) *Other Experimental Work.* Apart from the experimental studies on the autonomic nervous system and on the thyroid gland, Hunt's name is connected with many physiological, pharmacological and therapeutic problems which show the large scope of his scientific interest.

Among his early studies is the important paper on the general properties of the heart of the American lobster (*Homarus americanus*) which he found to occupy, physiologically, a position between the skeletal muscle and the cardiac muscle of vertebrates, in that this muscle has no refractory period and can be thrown into tetanus, while at the same time possessing a high degree of automaticity and the ability to show rhythmic contractions.

His studies on methylalcohol made the danger of this substance known to the American physician shortly after it had been recognized in Germany. When, during the war 1914-1918 the arsphenamines were first manufactured in this country, the toxicity studies which Hunt carried out and his advice in guiding the development of the production of these drugs were of fundamental importance in putting their therapeutic use on a safe basis. As special expert in the Department of Agriculture for the investigation of poisonous plants, Hunt succeeded in elucidating the cause of poisoning, and of the death of livestock in various parts of the United States ascribed to Death Cama (*Zygadenus venenosus*) by showing that the responsible substances were alkaloids with pharmacological properties similar to the veratrum alkaloids.

During the second half of his active scientific life, much of his thought and work was devoted to the problem of cancer and the possibility of finding specifie remedies for this disease. He argued that if specific derangements of cell metabolism were responsible for cancer, chemical compounds with a highly selective specific action might effect a cure and could probably be developed. He was convinced that for this as for other problems of disease and effective rational therapy, cooperative research—"joint intensive

effort of chemist, pharmacologist and physician" —offers the only promise of success.

3. *The Contributions of Reid Hunt to the Pharmacopoeia and to the Work of the Council on Pharmacy and Chemistry.*

Pharmacopoeial revision was one of the tasks which fell to Hunt when he entered the United States Public Health Service. He became greatly interested in this work. His advice and participation in the selection and characterization of the official drugs and his contributions, especially to the problem of biological standardization, were of great importance in making the U. S. Pharmacopoeia the universally acknowledged standard work it represents today. Hunt was recognized nationally and internationally for his work in this field by being elected President of the Pharmacopoeial Convention, 1920 to 1930, and by appointment to the Permanent Standards Commission of the League of Nations Health Committee.

It is characteristic of his wide view when—already in 1909—as Chairman of the U. S. Pharmacopoeia Revision Committee, he pointed out: "Until the pharmacopoeias of the world assume a more international character, corresponding to the present international character of medicine, they will fail more and more to represent truly the needs of the medical profession." Hunt early realized the necessity of looking at the problems of medicine and public health as international problems.

It is not enough to set up standards of high purity and reliability of official drugs; the medical profession and the public must be protected against useless and dangerous drugs. This was clearly recognized in America by Dr. George H. Simmons when he was Editor of the Journal of the American Medical Association. In 1905 Simmons created the Council on Pharmacy and Chemistry of the Amerian Medical Association for the purpose of investigating the claims of pharmaceutical manufacturers, in order to overcome the danger of uncontrolled introduction into medical and lay use of proprietary medicines. The result of the work of the Council is the collection of reports entitled "New and Non-official Remedies" which is well known to the members of the medical profession in this country. Hunt was appointed a member of the Council on Pharmacy and Chemistry in 1906 and served for 30 years. He became Vice-Chairman in 1924 and was Chairman from 1927 to his retirement in 1936.

E. M. K. Geiling, who succeeded Hunt as a member of the Council, recently stated: "Only the members who worked with him on the Council have an adequate appreciation of the enormous amount of time and labor that Reid Hunt put into the Council activities . . . Many of the difficult reports published by the Council were prepared personally by Dr. Hunt. It is the type of work that does not receive the public recognition that it deserves."

Probably very few of his colleagues in the Faculty of the Harvard Medical School and in the medical profession at large have known of this part of the life work of Hunt which represents such a very great service to medicine; yet it is a characteristic expression of a humanitarian motive which must have influenced the intensity of many of his scientific pursuits.

4. *The Personality of Reid Hunt.*

On all occasions Reid Hunt exhibited the composure inculcated by the Quaker tradition of emotional control. There was an air of gentleness and modesty about him which belied the determination and persistence with which he fought against the commercial exploitation of useless and dangerous drugs. In all discussions, in Faculty Meetings and in social gatherings, he showed complete lack of personal prejudices in regard to the opinions of others and toward race and creeds. Even in discussions under trying circumstances he never exhibited vehemence or exasperation. He enjoyed the companionship of men and was held in affectionate esteem and great respect by his friends because of his lovable personal traits and great knowledge of the biological sciences.

He was no seeker after influence or power in Harvard Medical School. His standards of usefulness were those of public service and achievement in original research.

In and out of the classroom and laboratory he was always a fine example of a gentleman—erudite, courteous, affable, and of absolute integrity.

5. *Honors Conferred on Reid Hunt.*

Fellow, National Academy of Sciences
Member, American Academy of Arts and Sciences
Member, Kaiserlich Leopoldinisch-Karolinisch Deutsche Akademie der Naturforscher
President, American Society of Pharmacology and Experimental Therapeutics, 1915
President, U. S. Pharmacopoeial Convention, 1920-1930
Chairman, Northeastern Section American Chemical Society, 1930
Chairman, Council on Pharmacy and Chemistry of the American Medical Association, 1927-1936
Member, Permanent Standards Commission of the League of Nations
Member, Advisory Board of the Hygienic Laboratory of the U. S. Public Health Service
Honorary S.D., University of Maryland, 1925

J. Howard Mueller
George B. Wislocki
S. Burt Wolbach
Otto Krayer, *Chairman*

Harvard Medical Society Meetings

OCTOBER MEETING

On Tuesday evening, October 12, the first of the 1948-49 Harvard Medical Society meetings convened. Dr. Arturo Rosenblueth, Director of the Physiological Laboratory, National Institute of Cardiology, Mexico City, and Dr. Norbert Wiener, Professor of Mathematics, Massachusetts Institute of Technology spoke on *"The Shape of the Spike Potential of Nerve."*

Dr. Rosenblueth pointed out the importance of developing a theoretical physiology to correlate and extend the present empirical science. In an attempt to initiate such a treatment of physiology, Dr. Rosenblueth and Dr. Wiener set out to analyze certain aspects of central nervous system function. They chose a relatively simple reflex, that of approaching the hand to an object, for study. They soon realized, however, that many components of such a reflex system were too poorly understood for such a treatment. They ultimately concerned themselves with one of the most basic of all the manifestations of nerve function, the spike potential.

Dr. Rosenblueth presented a mathematical analysis of the spike potential of a single nerve fiber. By dividing the curve into three segments it was possible to derive a mathematical expression to fit each part. Dr. Rosenblueth emphasized that such an analysis could not elucidate the mechanisms responsible for the formation of the spike potential. However, any theory of nerve function must satisfy the mathematical description.

Dr. Wiener described several interesting electronic control systems which are analagous in certain respects to the nervous system. He pointed out that the principles of theoretical analysis are very similar in all control systems, including the central nervous system. Dr. Wiener has recently published a book on the study of control systems. He has coined the term cybernetics to define this new science.

The fascinating potentialities of such treatment of the physiology of nerve made the evening a great success.

NOVEMBER MEETING

The November meeting of the Harvard Medical Society was held in the Building D Amphitheater at 8 P.M. on November 9. Dr. Charles S. Davidson introduced Dr. A. Baird Hastings who served as master of ceremonies. The program comprised five papers reporting the work of several members of the Department of Biochemistry.

Dr. Eric G. Ball presented the first paper on *"The Formation of Radioactive Cystine by Direct Bombardment in the Pile."* The work was done in collaboration with Dr. Arthur K. Solomon and Octavia Cooper. After several unsuccessful attempts, the group was able to obtain a sample of cystine which was effectively bombarded but not charred. They subjected this sample of bombarded cystine to various analytical procedures designed to demonstrate the source of radioactivity in the sample. All of the evidence pointed to the conclusion that the radioactivity resided in the S atom of the cystine molecule.

Dr. Ralph W. McKee then discussed *"The Relation of Vitamin C to Adrenal Cortical Hormones."* He described work done in collaboration with Drs. T. S. Cobbey, Jr., and Q. M. Geiman. Fasting caused a greater drop in liver glycogen concentration in normal guinea pigs than in scorbutic animals. Injection of eschatin or 11-dehydro corticosterone produced an increase in the liver glycogen of fasted normal guinea pigs but a decrease in the fasted scorbutic animals. They also observed that the vitamin C concentration of adrenal gland fell much more rapidly during a period of low ascorbic acid intake than did the C level in other tissues.

Dr. Claude A. Villee described in vitro studies of carbohydrate metabolism in the rat diaphragm. They incubated rat diaphragm in a Warburg vessel using glucose tagged with C_{14} as a substrate. At the end of the experiment, the amount of glucose

consumed, CO_2 produced, and glycogen synthesized were measured. Such studies were made on rat diaphragm obtained from normal, adrenalectomized, hypophysectomized, hypophysectomized-adrenalectomized, alloxan diabetic, and alloxan diabetic-adrenalectomized animals. About one third of the glucose consumed could not be accounted for in the recovered glycogen and CO_2, plus the estimated amounts of lactic acid, lipid, and protein produced. The fate of this fraction remains obscure. Insulin increased glucose utilization but did not affect oxygen consumption. This effect was observed even in hypophysectomized-adrenalectomized animals. These results contradict the Cori theory that insulin acts only by opposing the hormones of the adrenal and hypophysis which inhibit phosphorylation of glucose.

Dr. A. Baird Hastings described some experiments done in collaboration with Dr. Yale J. Topper on the mechanism of glycogen synthesis in the fasting rat liver. They found that glucose synthesized from CO_2 or acetate tagged with C_{14} possessed radioactivity only in the 3 and 4 positions in the molecule. If pyruvate tagged with C_{14} in the carbonyl position was employed as substrate, however, the resultant glucose molecules showed radio activity in all positions in a definite ratio. Since direct synthesis of the pyruvate to glucose could result in radioactivity in the 2,5 or 1,6, but never in the 3,4 positions, it was deduced that some catabolism of pyruvate to 1 and 2 carbon fragments must occur during synthesis to glucose.

"The Use of P_{32} in Localization of Brain Tumors" was discussed by Dr. Bert Selverstone. The work was done in collaboration with Drs. William H. Sweet and Arthur K. Solomon. P_{32} is an appropriate isotope for such work. Tumor tissue takes up 5 to 100 times more P_{32} than does normal brain tissue. Furthermore, the half life of the isotope is 14 days which diminishes the possibility of late complications of radiation, while providing plenty of time for careful study when the counting rate is high. Finally, the isotope emits only beta rays which penetrate but 7.5 mm. By using a Geiger-Müller counter constructed in the form of a probe it is thus possible to obtain precise localization of tumors within the brain substance.

DECEMBER MEETING

The Harvard Medical Society met jointly with the Boston City Hospital House Officer's Association in the Dowling Amphitheatre, Boston City Hospital, on the evening of December 14. Dr. Charles S. Davidson was chairman for the meeting.

Dr. Beverly T. Towery presented a case report of *"Chronic Renal Acidosis with Osteomalacia."* Dr. Towery outlined the clinical history of a 65 year old woman who had recently suffered pathological fractures. Laboratory studies revealed marked osteomalacia in the presence of renal acidosis.

Some *Observations on Aureomycin* made by Drs. Harvey S. Collins, E. Buist Wells, and Maxwell Finland were described by Dr. Finland. He reviewed the efficacy of the drug in a wide variety of infections. Aureomycin is clearly the best known therapeutic agent for rickettsial diseases and infections of the psitticosis-lymphogranuloma venereum group with the possible exception of the recently developed chloromycetin. It is ineffective in other viral diseases. The drug is useful though less potent than penicillin in the treatment of most coccal infections. Results with the Salmonella infections have been equivocal. It is clearly the best drug thus far discovered for the therapy of H. influenzae infections and primary atypical pneumonia. The drug can be administered parenterally or orally. The only toxic manifestations encountered to this date have been diarrhea and nausea.

Dr. A. Price Heusner reported on *"Non-Tuberculous Spinal Epidural Infections."* Dr. Heusner emphasized the importance of this rare condition to every physician. It can cause permanent disability or death unless properly diagnosed and treated early in its course. Adequate surgical drainage within 24 hours of the onset of

paralysis generally obviates serious sequelae. The acute attack is characterized by low grade fever, backache, nerve root pain and eventually paralysis. Lumbar puncture may reveal either pus in the epidural space or block. The most common pathogen is the staphylococeus aureus. The disease sometimes occurs with no demonstrable organism and occasionally results from extension of an osteomylelitic process in the spine. Dr. Heusner pointed out that the severity of the paralysis seems out of all proportion to the compressive action of the lesion. Although antibiotics are a helpful therapeutic adjunct, surgical drainage is still the definitive treatment.

Dr. William B. Castle described some of the current information concerning vitamin B_{12} which was isolated last spring in the form of red, needle-shaped crystals by Rickes and his associates at the Merck Laboratories. Its molecular weight is 1,550 or 3,000, and it contains three atoms of phosphorus and one atom of cobalt, nitrogen but no sulfur. The compound apparently reproduces all of the physiological effects of liver extract in pernicious anemia except for sensitivity reactions. A dose of one gamma when injected is equivalent to one U.S.P. unit of liver extract. All evidence points to the conclusion that vitamin B_{12} is the active, anti-pernicious anemia principle of liver extract. The speaker reviewed evidence to indicate that vitamin B_{12} is also probably the common denominator of the animal protein factor, chick hatchability factor, rat growth factor and possibly the so-called extrinsic factor concerned in the etiology of pernicious anemia. In support of the last point, Doctor Castle reported work done in collaboration with Dr. Lionel Berk of Harvard, recently deceased, and with Drs. Arnold Welch and Robert Heinle and their colleagues of Western Reserve University Medical School. These investigators showed that vitamin B_{12}, orally administered, was more effective in patients with pernicious anemia when gastric juice was given simultaneously. Even with gastric juice, however, the drug was not as potent orally as when administered intramuscularly without gastric juice. Beef muscle, the classical source of extrinsic factor, has been shown to contain vitamin B_{12} according to microbiological assay, and an appropriate extract of beef muscle was found to be active in pernicious anemia when injected intravenously.

Besides liver, bacterial synthesis is an important source of vitamin B_{12} and one that is presently being utilized by the pharmaceutical industry in the experimental production of substances effective in pernicious anemia. Bethell of the University of Michigan Medical School has shown that the patient with pernicious anemia when on a diet containing little or no vitamin B_{12} nevertheless excretes the vitamin in the feces. He has actually prepared from the feces of patients with pernicious anemia extracts with hematopoietic activity upon intramuscular injection in other patients with pernicious anemia. Doctor Castle pointed out that man's predilection to develop pernicious anemia may be partically traceable to the localization of the intestinal flora capable of the synthesis of vitamin B_{12} largely in the colon and so at the post-absorptive region of the bowel.

The Stethescope

Last year the students sent a number of food packages abroad by collecting funds for this purpose through Vanderbilt Hall. Recently a letter came from a Third Year Medical Student at Strasbourg who received a Harvard package; part of it is worth quoting: "I have been touched by your gift. Let me thank you very much for it. I am glad to see American students helping French students in an efficacious way. No Christmas gift could have been better for my mother and me."—For the first time in the history of the School the Faculty Room has been used for a large medical meeting. A group of investigators interested in blood preservation and blood proteins met in Boston recently, assembled at the request of the Committee on Medical Sciences of the Research and Development Board of the National Military Establishment. The Faculty Room was transformed into a meeting place and here more than a hundred and fifty experts worked steadily for two and a half days discussing almost every phase of a peculiarly complicated subject. The meeting was interesting and skilfully managed by Dr. Edwin Cohn. At the head of the presiding officer's table, he sat in The Professor's Chair—first used at North Grove Street in 1847—and maintained law and order with a dignity more than equal to that displayed by the High Sheriff of Middlesex County at Commencement.—The Uniform Intern Placement Plan as used this year proved successful from the view-point of the students. Everyone in the Fourth Year Class who wanted an appointment received one promptly and pretty much in accordance with his desires. The appointments were announced at midnight of November 15th —a Sunday night as it so happened. That was the night the electric lights of the Administration Building failed to cooperate so that the scene had to be shifted to Vanderbilt Hall. Miss Murphy held the situation in good control and, as they say in the vernacular, a pleasant time was had by all.—Speaking of Vanderbilt Hall, the Vanderbilt Hall Committee is functioning well. This Committee is comprised of the four class Presidents, a representative of the women students, a faculty representative from the preclinical departments, one clinician and the Assistant Dean. Its function is to regulate affairs within the dormitory. Already this Committee has helped to improve the attractiveness of the surroundings. The Hall is a busy place: for the athletically inclined there are basketball and squash teams which compete with outside groups; for the socially inclined there are dances and a chance to entertain guests at meal time; and for the studious, there are meetings of clubs or fraternities or other groups for discussion purposes. The dormitory has become the center of student life; during the year a surprisingly large number of visitors make its acquaintance and appreciate its existence.—The middle of the academic year is fast approaching. Already the Fourth Year men are thinking of their final general examination and the First Year men are contemplating a shift in their labor from the study of anatomy to delving into the mysteries of physiology and biochemistry. The Committee on Admission is struggling to select a new entering class from a horde of promising applicants.—The Faculty has boldly announced that it has refused to avail itself of the plan proposed by Selective Service for the provisional admission as "premedical students" of men still in their first and second years of college and for their draft deferment. The Faculty, in making this decision is not alone but has such distinguished companions as Boston University, Cincinnati, Johns Hopkins, Missouri, Wisconsin and Yale.

Editorial

Today when the costs of medical care are nearing comparatively astronomical levels, it is encouraging to be able to report on an unusual and refreshing philosophic approach to the problem. Every trustee of a voluntary hospital has by now considered the ultimate effect of the rising costs of hospital housekeeping plus the increasing expenses attributable to new therapies and drugs in the light of increased taxation and declining capital gifts. The legislation to nationalize hospitals in Britain, New Zealand, Australia, France, Sweden and other countries provides a ready, though to a very large extent, unpalatable solution.

The trustees of the Massachusetts General Hospital have inquired into the possible methods of reducing hospitalization requirements. Only one answer has been found: To reduce by means of research the number and the morbidity of diseases. It is not generally appreciated for instance that were the incidence of typhoid and paratyphoid fevers at the level of only a few years ago the cost for the nation would be about $45,000,000 instead of less than 1,000,000 as in 1947. Other examples such as diphtheria and lobar pneumonia are readily discovered.

The trustees of the Massachusetts General Hospital are therefore actively engaged in a campaign not to add more beds which would further drain the capital funds, but to erect a research building, from which, it is hoped, may come advances in science that may some day decrease the need for hospital beds.

Edward D. Churchill in speaking to the hospital corporation said, "To continue to work for the public welfare calls for imagination and long range vision. Our institution must work and work fast to preserve functions that are essential and not waste time trying to preserve organizational patterns that society may consider outmoded. Research is an essential function. It stands hand in hand with education. By determined efforts it may be possible to reduce the vast amount of medical service that is being demanded. It can be done only by intensity of effort directed towards the control and elimination of disease".

The Report to the Commission on Organization of the Executive Branch of the Government (Herbert Hoover, Chairman) by the Committee on Federal Medical Service reaches the same conclusion. They unanimously point out that almost all of the problems facing the health of the nation together with the social and economic implications thereof can eventually best be solved through more intensive research. The problems dealt with directly concern the Medical Services of the Armed Forces, the Veterans Administration and other Federal Medical Committments. By implication the problems associated with the increasing needs for civilian hospital beds, the maldistribution of medical manpower and the economic inequalities that have led to proposals for compulsory health insurance can eventually be solved in like manner. Disease should be attacked not only by the long stern chase, but also by an outflanking maneuver via research.

Book Reviews

Coronary Heart Disease by A. Carlton Ernstene, M.D., 102 pages. Springfield, Illinois; Charles C. Thomas, 1948. Price $2.50.

Another volume in the American Lecture Series, Dr. Ernstene's monograph is a careful and simple account of coronary heart disease. An introduction deals with the incidence, pathology, and pathogenisis of the disease. This is followed by chapters on angina pectoris and acute myocardial infection. Briefer sections discuss acute coronary failure, paroxysmal dysphonia and disturbances of cardiac rhythm. Three pages are devoted to congestive failure, and five pages to the risk of anesthesia and surgical operations. There is a short and well-chosen list of references at the end of the book.

This small volume is intended to be little more than a bird's-eye view of the subject. In a pleasantly readable style, it covers all the important features of coronary heart disease without going into great detail. The discussion of the pathology of the disease is handled particularly well.

There is little of a controversial nature in the author's point of view. He advocates a much longer period of bed rest following myocardial infarction than do most cardiologists today. And he appears to place more reliance on the xanthine group of drugs. He gives considerable emphasis to a complication of myocardial infarction with which this reviewer was not familiar. According to Dr. Ernstene, 15 per cent of all cases suffer from a periarthritis of one or both shoulders with or without an associated painful disability of the hand.

It is unfortunate that the book does not include electrocardiographic illustrations, since written descriptions of electrocardiograms are always unsatisfactory. This lack, and the brevity of the chapters on congestive failure and disturbances of heart rhythm, show that the author had chosen to sacrifice much for the sake of being concise. He obviously intends to refer the reader to other works for a more complete study. It is natural to wonder for whom this monograph is intended. Cardiologists and internists will find they are thoroughly familiar with its subject matter. There is not sufficient detail to make it a practical reference book for general practitioners and medical students. This reviewer feels that it is not a valuable addition to the texts on heart disease.

Reed Harwood '34

Diseases of the Skin by Oliver S. Ormsby, M.D., and Hamilton Montgomery, M.D., M.S., 1431 pages. Philadelphia: Lea & Febiger, 1948. Price $18.00.

The seventh edition of this well-known textbook comprises 1431 pages, which is 101 pages more than the previous edition. There are many changes and additions which increase the value of the book.

The rewriting of the chapters on chemistry and physiology, on syphilis and on mycology deserves special mentioning. The chapter on chemistry and physiology is a comprehensive survey of this subject with an excellent biography. The discussion of syphilis is up to date and includes the latest concepts of penicillin therapy. The chapter on mycology is especially well written giving adequate consideration to the clinical as well as to the laboratory aspects of the mycoses.

This histopathologic description of several diseases has been brought up to date. As in previous editions the thorough but concise discussion of the histopathology of each disease represents one of the most commendable features of the book.

In spite of extensive alterations throughout successive editions there still are many passages in this book which have not changed for many years and are obsolete. Several chapters, instead of further additions and improvements, require rewriting. The descriptions of dermatitis and eczema and the discussions of external therapy and roentgentherapy may be cited as examples.

Walter F. Lever, M.D.